

WHAT IS CLAIMED IS:

1. A method of determining the amount of an analyte in a fluid sample, comprising:
 - (a) conjugating said analyte with a ligand to create a sample comprising a ligand-analyte conjugate;
 - (b) contacting the sample of the ligand-analyte conjugate with a solution containing a ligand-green fluorescent protein conjugate and an immobilized anti-ligand in a predefined ratio, wherein the ligand is identical in said ligand-analyte conjugate and said ligand-green fluorescent protein conjugate, and said ligand-analyte conjugate and said ligand-green fluorescent protein conjugate competitively bind with said anti-ligand;
 - (c) separating said immobilized anti-ligand and any conjugates binding thereto from any unbound conjugates to create a supernatant containing unbound conjugates;
 - (d) measuring the intensity of fluorescence of said immobilized anti-ligand or said supernatant; and
 - (e) relating the measured intensity of fluorescence to the amount of analyte in the sample.
2. The method of claim 1, wherein said ligand is biotin and said anti-ligand is avidin or streptavidin.
3. The method of claim 1, wherein said ligand is a hapten and said anti-ligand is an immunoglobulin that specifically binds said hapten.

4. The method of claim 1, wherein said analyte is a biomolecule.
5. The method of claim 4, wherein said biomolecule is selected from the group consisting of agonists, antagonists, toxins, venoms, viral epitopes, hormones, hormone receptors, polypeptides, enzymes, cofactors, enzyme substrates, drugs, lectins, sugars, oligonucleotides, oligosaccharides, proteins, and antibodies.
6. A method of determining the amounts of at least two analytes in a fluid sample, comprising:
 - (a) preparing a sample of at least two analyte-ligand conjugates by conjugating a first analyte with a first ligand to create a first analyte-ligand conjugate, and
conjugating at least a second analyte with at least a second ligand to create at least a second analyte-ligand conjugate;
 - (b) contacting the sample comprising the first ligand-analyte conjugate and at least second ligand-analyte conjugate with a solution containing (i) a first ligand-first green fluorescent protein conjugate and a first immobilized anti-ligand in a predefined ratio, and (ii) at least a second ligand-second green fluorescent protein conjugate, and at least a second immobilized anti-ligand in a predefined ratio, wherein said first ligand-analyte conjugate and said first ligand-first green fluorescent protein conjugate competitively bind with said first anti-ligand, but do not bind with said at least second anti-ligand, said at least second ligand-analyte conjugate and said at least second ligand-second green fluorescent protein

conjugate competitively bind with said at least second anti-ligand, but do not bind with said first anti-ligand, and said first ligand-first green fluorescent protein conjugate emits fluorescent light which is distinct from fluorescent light emitted by said at least second ligand-second fluorescent protein conjugate;

(c) separating said immobilized first and at least second anti-ligand and any conjugates binding thereto from any unbound conjugates to create a supernatant containing unbound conjugates;

(d) distinctly measuring the intensity of fluorescence of bound or unbound first ligand-first green fluorescent protein conjugate and the intensity of fluorescence of bound or unbound at least second ligand-second fluorescent protein conjugate; and

(e) relating the measured intensity of fluorescence of said bound or unbound first ligand-first green fluorescent protein conjugate and the intensity of fluorescence of bound or unbound at least second ligand-second fluorescent protein conjugate to the amount of first and at least second analyte, respectively, in the sample.

7. The method of claim 6, wherein said first and at least second analytes are biomolecules.

8. The method of claim 7, wherein said biomolecules are selected from the group consisting of agonists, antagonists, toxins, venoms, viral epitopes, hormones, hormone receptors,

polypeptides, enzymes, cofactors, enzyme substrates, drugs, lectins, sugars, oligonucleotides, oligosaccharides, proteins, and antibodies.

9. The method of claim 1, in which the step (d) of measuring the fluorescence intensity is performed by evanescent wave fluorimetry.

10. The method of claim 6, in which the step (d) of distinctly measuring the fluorescence intensity distinctly measuring of the first ligand-first green fluorescent protein conjugate and the fluorescence intensity of the at least second ligand-second fluorescent protein conjugate is performed by evanescent wave fluorimetry.